

CLAIMS

We claim:

1. An isolated polynucleotide molecule comprising a polynucleotide sequence that encodes a connective tissue growth factor homolog polypeptide that is at least 70% identical to the amino acid sequence as shown in SEQ ID NO: 2 from residue 24 to residue 354.

2. The polynucleotide molecule of claim 1, wherein the polynucleotide molecule comprises a region having the following motif as shown in SEQ ID NO: 23:

$Cx\{8,10\}CxCCxxCx\{7\}Cx\{5,6\}Cx\{5,7\}Cx\{12,13\}Cx\{7,8\}Cx\{20\}$
 $CxCx\{6\}Cx\{12,14\}Cx\{13,17\}C$

wherein $x\{ \}$ is the number of amino acid residues between cysteines (C).

3. The polynucleotide of claim 1, wherein the polynucleotide is 80% identical to the amino acid sequence as shown in SEQ ID NO: 2 from residue 24 to residue 354.

4. The polynucleotide of claim 1, wherein the polynucleotide is 90% identical to the amino acid sequence as shown in SEQ ID NO: 2 from residue 24 to residue 354.

5. An isolated polynucleotide acid molecule that encodes a connective tissue growth factor homolog polypeptide, wherein the polynucleotide molecule is selected from the group consisting of:

(a) a molecules having the nucleotide sequence of SEQ ID NO:1 from nucleotide 17 or 86 to nucleotide 1078;

(b) a molecule encoding the amino acid sequence of SEQ ID NO:3 from nucleotide 1 or 70 to nucleotide 1062; and

(c) a molecule that hybridizes under stringent wash conditions to a polynucleotide molecule having the nucleotide

sequence of nucleotides 86 to 1078 of SEQ ID NO:1, or the complement of nucleotides 86 to 1078 of SEQ ID NO:1.

6. The polynucleotide molecule of claim 5, wherein any differences in the amino acid sequence encoded by the polynucleotide and SEQ ID NO: 2 are conservative amino acid changes.

7. An expression vector comprising the following operably linked elements:

- a transcription promoter;
- a DNA segment comprising the isolated polynucleotide molecule of claim 1; and
- a transcription terminator.

8. A cultured host cell into which has been introduced the expression vector of claim 7.

9. A method of producing a connective tissue growth factor homolog polypeptide comprising:

- (a) culturing the host cells of claim 8; and
- (b) isolating the connective tissue growth factor homolog polypeptide from the cultured host cells.

10. An isolated connective tissue growth factor polypeptide comprising an amino acid sequence that is at least 70% identical to the amino acid sequence as shown in SEQ ID NO: 2 from residue 24 to residue 354.

11. The isolated polypeptide of claim 10, wherein the amino acid sequence is at least 80% identical.

12. The isolated polypeptide claim 10, wherein the amino acid sequence is at least 90% identical.

13. The isolated polypeptide of claim 10, wherein the polypeptide molecule comprises a region having the

following motif as shown in SEQ ID NO: 23:

Cx{8,10}CxCCxxCx{7}Cx{5,6}Cx{5,7}Cx{12,13}Cx{7,8}Cx{20}
CxCx{6}Cx{12,14}Cx{13,17}C

wherein x{ } is the number of amino acid residues between cysteines (C).

14. An antibody or antibody fragment that specifically binds with the polypeptide of claim 10.

15. A method of detecting the presence of connective tissue growth factor homolog polypeptide in a biological sample, comprising the steps of:

(a) contacting the biological sample with an antibody, or an antibody fragment of claim 14, wherein the contacting is performed under conditions that allow the binding of the antibody or antibody fragment to the biological sample, and

(b) detecting any of the bound antibody or bound antibody fragment.

16. An anti-idiotypic antibody, or anti-idiotypic antibody fragment, that specifically binds with the antibody or antibody fragment of claim 14.

17. A method of detecting a chromosome 6q abnormality in sample from an individual comprising:

(a) obtaining zCTGF4 RNA from the sample;

(b) generating zCTGF4 cDNA by polymerase chain reaction; and

(c) comparing the nucleic acid sequence of the zCTGF4 cDNA to the nucleic acid sequence as shown in SEQ ID NO: 1.

18. The method of claim 18, wherein the difference between the sequence of the zCTGF4 cDNA or zCTGF4 gene in the

sample and the zCTGF4 sequence as shown in SEQ ID NO: 1 is indicative of chromosome 6q abnormality.